

REMARKS/ARGUMENTS

Claims 1 through 10 stand rejected in the outstanding Official Action. Claim 3 has been cancelled without prejudice. Claims 1, 2, 7 and 8 amended and newly written claims 11 through 16 offered for consideration. Accordingly claims 1, 2, and 4 through 16 are the only claims remaining in this application.

The Examiner's acknowledgement of receipt of applicants' claim for foreign priority and receipt of the certified copies of the priority document is very much appreciated.

In section 2 of the Official Action the Patent Office objects and alleges that the Oath or Declaration is defective. By telephone discussion with the Examiner on June 19, 2003 the Examiner confirms that there is no defective Oath as applicants' Petition under Rule 47 was granted on September 19, 2002 thereby obviating the objection.

The drawings stand objected to as allegedly failing to show each feature of the invention specified in the claims. The Examiner suggests that the first electrodes of the array of addressable active elements on a semiconductor substrate as set out in claims 1 to 3, 7 and 8 have not been shown. The Examiner's attention is directed to Figure 4 which shows first electrodes 65 of an addressable active element formed on a substrate 51. Should the Examiner believe that Figure 4 does not show an array of such elements an array 4 is clearly illustrated and labeled in Figures 2 and 3.

The Examiner also suggests that none of the drawings show an array of addressable active elements on a semiconductor substrate. Again the Examiner's

attention is directed to the "central array 4" shown in Figures 2 and 3. Figure 4 shows the substrate 51 upon which the array of active elements 4 is formed.

The Examiner's statement that the active elements are formed in an active silicon backplane is believed to be incorrect. An active silicon backplane is only created when active elements are formed on the silicon substrate. Prior to the formation of the active elements there is no active backplane. The terminology used in applicants' claims specify that the active elements are formed on a silicon substrate and this is used throughout applicants' specification (e.g., see page 13, line 60).

The Examiner also suggests that the specification language is not clear and in particular the language of page 12, lines 25 to 26 stating that the glass or silica substrate is coated on its underside. "Its" clearly refers to the glass or silica substrate 7 which is coated on its underside. Figure 2 shows such a substrate 7 which has an electrode 8 on its underside. However applicants have amended page 12, line 26 to delete the term "its" and substitute the phrase "the substrate".

The drawings are also objected to as allegedly failing to comply with Rule 84 alleging that characters 6 and 7 have been used to designate the same component. A review of applicants specification will indicate that this is not the case and that item 6 the "front electrode" is comprised of element 7 the substrate and element 8 the ITO conductive layer. Together items 7 and 8 comprise the front electrode 6. This interrelationship can be seen in Figure 1 I which the front electrode 6 is identified by an arrow directed towards the structure comprised of the substrate identified lead line 7 and

the ITO layer identified by lead line 8. Items 7 and 8 combine to form the front electrode 6 as clearly set forth in Figure 1 and in applicants' specification.

As result of the above and the minor amendments made to applicants' specification, the drawings clearly meet the requirements of Rules 83 and 84 and therefore no drawing correction is believed required.

The Patent Office objects to the Abstract, the arrangement of the specification and the Draftsman object to the drawings. It is also appreciated that the Examiner has brought the Abstract, the arrangement of the specification and the existence of Form PTO-948 to the applicant's attention. It is noted that the objection to the Abstract, the arrangement and this form appear to be an indication that the originally filed specification and drawings (transmitted from WIPO) do not meet the formality requirements of the U.S. Patent and Trademark Office. The Patent Office is reminded that the U.S. Patent and Trademark Office must comply with all articles of the Patent Cooperation Treaty (PCT) including Article 27. It has been held that:

"if the rule and interpretation of the PTO conflicts with the PCT, it runs afoul of Article 27 of the PCT which provides in part:

- (1) No national law shall require compliance with requirements relating to the form or contents of the international application different from or additional to those which are provided for in this Treaty and the Regulations."
Caterpillar Tractor v. Commissioner, 231 USPQ 590, 591 (EDVA 1986).

The Patent Office has referenced this decision in the Official Gazette dated September 9, 1986 (1070 TMOG 5).

As a consequence, the Patent Office (including the Chief Draftsman's Office) may not require Abstract changes, specification format changes and/or drawing corrections (including changes in paper size, margins, etc.) as long as the originally submitted documents comply with the PCT requirements. Inasmuch as this specification and these drawings were forwarded for WIPO, by definition, they meet the PCT requirements (they are not forwarded until they meet PCT requirements.). Therefore, the objection to the Abstract, the specification and the Notice of Draftsman's Patent Drawing Review is respectfully traversed and reconsideration thereof is respectfully requested.

Notwithstanding the above, applicant has included a retyped Abstract on a separate sheet, and has added headings and subheadings to the specification.

Claim 8 stands objected to as allegedly being a duplicate of claim 7. Again the Patent Office position is believed to be untenable as claim 8 specifies a pair of addressing conductors whereas claim 7 specifies originally specified "a conductor" and has been amended to recite "at least one conductor". Thus claim 7 is broader in scope because it encompasses both one and a plurality of conductors whereas claim 8 requires a pair of conductors. How or why the Examiner believes claim 8 is a "substantial duplicate" of claim 7 is not understood and clarification requested.

Claims 1 through 10 stand rejected under 35 U.S.C. § 112 (second paragraph) as being indefinite. Specifically the Examiner suggests that the phrase "a reverse biased capacitative diode" is not clearly defined or distinctly pointed out. Those having ordinary skill in the art in the field to which the present invention pertains will understand that

diodes, when reverse biased, can exhibit a certain amount of capacitance, i.e. an ability to store charge.

Attached hereto is several pages from an introductory textbook by F.R. Connor originally printed in 1980 which describes how a PN junction can operate as a diode (see pages 34 and 35). The application of forward bias causes current to flow across the junction where reverse bias the current flow is substantially prevented. On page 37, it is disclosed how under reverse bias, a PN junction will have a certain capacitance. (Page 37, lines 4 and 5). As a result the phrase "a reverse biased capacitative diode" is quite clearly understood to be a diode which under reverse bias exhibits a certain capacitance. As a result this language remains in applicants claims 1 and 2 and any further rejection under 35 U.S.C. §112 is respectfully traversed.

The rejection of claims 1, 2, 3 7 and 8 as being indefinite is also based upon the language "a said first electrode" and the language has been corrected in claims 1, 2, 7 and 8 and claim 3 cancelled without prejudice.

Accordingly, in view of the above, there is no further basis for rejection of claims 1 through 10 under 35 U.S.C. §112 and any further rejection thereunder is respectfully traversed.

Claims 1, 2, 4 to 6, 9 and 10 stand rejected under 35 U.S.C. § 102 as being anticipated by Whight (U.S. patent 5,223, 919). In relying upon the Whight reference,

the Examiner alleges that claim structures are present in the Whight disclosure but the Examiner apparently has not examined the specifics of those alleged disclosures. For example, the Examiner alleges that Whight discloses a "semiconductor active backplane" when in fact Whight discloses a photo transistor. The term "semiconductor active backplane" is a well-known term of art and is used to describe a semiconductor device in which a plurality of active elements are provided to energize corresponding pixels in an array. The Whight reference is simply a single photo-transistor element fabricated on a semiconductor substrate. There is no array of active elements.

Applicants' claim also specifies an array of addressable active elements and as noted above Whight simply discloses a single photo transistor.

The Examiner also suggests that Whight teaches that the alleged array of addressable active elements is for selectively energizing respective first electrodes. However Whight as noted above does not teach any array and thus cannot teach "selectively energizing" first electrodes of the array.

Finally the Examiner states that the "charge trapping implant 6" is provided "adjacent but spaced from the depletion region 5". In Whight, the Examiner is simply incorrect. In the Whight reference, "region 6" is within the depletion region of the main PN junction 5 (see column 6, lines 23 through 27), i.e., not "spaced from" as required by the claim. The Whight disclosure is precisely the opposite of applicants' independent

claim which specifies that the charge trapping implant "is provided adjacent but spaced from said depletion region." Not only does

Whight, in failing to teach the claimed organization of elements, would lead one of ordinary skill in the art directly away from the claimed invention even assuming everything else about the Whight reference were as suggested by the Examiner.

As a result of the above, the Whight reference simply does not teach or disclose any of the features of applicants' features or interrelationships of applicants' independent claims and therefore cannot anticipate or render obvious the subject matter of these claims and any further rejection thereunder is respectfully traversed.

Claim 2 stands rejected under 35 U.S.C. § 102 as being anticipated by Ouchi (U.S. patent 4,816,890). Ouchi teaches an avalanche photo-diode structure and for reasons similar to those noted above with respect to the Whight reference does not teach a semiconductor active backplane. Ouchi also describes only a single element photo diode and not an array of elements does not teach a means for selectively energizing first electrodes etc. Applicants claim 2 also recites a guard ring provided over or around the periphery of the depletion region to prevent or hinder charged carriers from crossing between the depletion region and the rest of the substrate. Ouchi teaches a guard ring by forming depletion region 25 and locating this only under the central region of the PN junction 26.

While guard rings by themselves are known and used in many types of devices, it is the combination in claim 2 of a guard ring to prevent stored charge leaking from the capacitive diode formed beneath the first electrode in a semiconductor backplane that is the key concept. There is no disclosure of such structure or structural interrelationship in the Ouchi reference and therefore any further rejection under 35 U.S.C. § 102 is respectfully traversed.

Claim 3 is rejected under 35 U.S.C. § 102 as being anticipated by Sunami (U.S. patent 5,214,496). Applicant has cancelled claim 3 without prejudice thereby obviating any future rejection of claim 3 thereunder.

Claim 7 stands rejected under 35 U.S.C. § 102 as being anticipated by Yuan (U.S. patent 6,512,263). It is noted that Yuan is not available as a reference against the pending application which claims priority, as confirmed in the Office Action Summary, back to applicants' originally filed international filing date of December 16, 1999 and its GB priority date December 19, 1998. Yuan having only been filed in the U.S. Patent Office on September 22, 2000 is not a reference against the present invention.

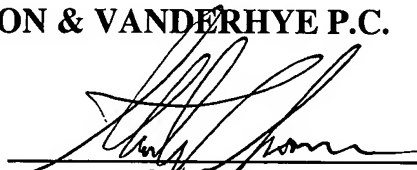
Applicants have also offered newly written claims 11 through 16 directed towards preferred embodiments of applicants' invention. Entry and consideration of these newly submitted claims is respectfully requested.

Having responded to all objections and rejections set forth in the outstanding Official Action, it is submitted that claims 1, 2, and 4 through 16 are in condition for allowance and notice to that effect is respectfully solicited. In the event the Examiner is of the opinion that a brief telephone discussion will facilitate allowance of the application, he is respectfully requested to contact applicants' undersigned representative.

Respectfully submitted,

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